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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 10/040,680 | 11/09/2001 | Richard C. Chu | POU920000148US1 | 2926 |

7590 02/04/2004
Andrew J. Wojnicki, Jr.
IBM Corporation - M/S P386
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EXAMINER

PATEL, NIHIR B

ART UNIT PAPER NUMBER

3743

DATE MAILED: 02/04/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/040,680

Applicant(s)

CHU ET AL.

Examiner

Nihir Patel

Art Unit

3743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 and 32-36 is/are pending in the application.
- 4a) Of the above claim(s) 6-10 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-5 and 32-36 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Response to Arguments

In response to applicant's argument that Eastmen does not appear to address electronic device orientation is nonanalogous art, it has been held that a prior art reference must either be in the field of applicant's endeavor or, if not, then be reasonably pertinent to the particular problem with which the applicant was concerned, in order to be relied upon as a basis for rejection of the claimed invention. See *In re Oetiker*, 977 F.2d 1443, 24 USPQ2d 1443 (Fed. Cir. 1992). In this case, Eastmen reference is not used to teach or address electronic device orientation but rather to provide plurality of check valves, each of the check valves being disposed within a fluid flow path in proximity to one of the boiling chamber inlet ports, each of the check valves being oriented to allow fluid flow from the tube to the boiling chamber while prohibiting fluid flow from the boiling chamber into the tube.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, each of the check valves being disposed within a fluid flow path in proximity to one of the boiling chamber inlet ports, each of the check valves being oriented to allow fluid flow from the tube to the boiling chamber while prohibiting fluid flow from the boiling chamber into the tube in order to increase the cooling process.

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

The applicant also argues that Kobayashi teaches against the use of check valves but when the examiner examined the Kobayashi reference, the reference never mentions nor suggests not using check valves.

The applicant also argues that Kobayashi teaches against the use of a single condenser unit having inlets and outlets located at the device periphery. The examiner disagrees. Referring to figures 1 and 2 it shown that a single condenser unit having inlets and outlets (41a, 41b, 42a, and 42 b) located at the device periphery.

In conclusion, rejection of claims 1-5 is repeated from the previous office action dated September 9th, 2003.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 32 and 33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. US Patent No. 5,998,863 in view of Eastman et al. US Patent No. 4,230,173.

Kobayashi discloses the applicant's invention as claimed with the exception of providing a plurality of check valves, each of the check valves being disposed within a fluid flow path in proximity to one of the boiling chamber inlet ports, each of the check valves being oriented to allow fluid flow from the tube to the boiling chamber while prohibiting fluid flow from the boiling chamber into the tube.

Eastman discloses a closely coupled two phase heat exchanger that does provide a plurality of check valves, each of the check valves being disposed within a fluid flow path in proximity to one of the boiling chamber inlet ports, each of the check valves being oriented to allow fluid flow from the tube to the boiling chamber while prohibiting fluid flow from the boiling chamber into the tube (see figure 2). Therefore it would be obvious to modify Kobayashi's invention by providing a plurality of check valves, each of the check valves being disposed within a fluid flow path in proximity to one of the boiling chamber inlet ports, each of the check valves being oriented to allow fluid flow from the tube to the boiling chamber while prohibiting fluid flow from the boiling chamber into the tube in order to increase the cooling process.

Claim 34 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. US Patent No. 5,998,863 as applied to claims 1 and 2 above, and further in view of Terao et al. US Patent No. 6,005,772.

Kobayashi discloses the applicant's invention as claimed with the exception of providing cooling fluid that is selected from the group consisting of water, brine, and dielectric fluids.

Terao discloses a cooling apparatus for high-temperature medium by boiling and condensing refrigerant. Therefore it would be obvious to modify Kobayashi's invention by providing cooling fluid that is selected from the group consisting of water, brine, and dielectric fluids in order to increase the cooling process.

Claim 35 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. US Patent No. 5,998,863 as applied to claims 1 through 3 above, and further in view of Berenholz et al. US Patent No. 5,168,919.

Kobayashi discloses the applicant's invention as claimed with the exception providing a dielectric fluid as the refrigerant.

Berenholz discloses an air cooled heat exchanger for multi-chip assemblies that does provide dielectric fluid as the refrigerant. Therefore it would be obvious to modify Kobayashi's invention by providing a dielectric fluid as the refrigerant in order to increase the cooling process.

Claim 36 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kobayashi et al. US Patent No. 5,998,863 as applied to claims 1 through 4 above, and further in view of Mizuno et al. US Patent No. 5,522,452.

Kobayashi discloses the applicant's invention as claimed with the exception of providing a cooling fluid that is at a pressure below atmospheric pressure.

Mizuno discloses a liquid cooling system for LSI packages that doe provide a cooling fluid that is at a pressure below atmospheric pressure. Therefore it would be obvious to modify Kobayashi's invention by providing a cooling fluid that is at a pressure below atmospheric pressure in order to increase the cooling process.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communication from the examiner should be directed to Nihir Patel whose telephone number is (703) 306-3463. The examiner can normally be reached on Monday-Friday from 7:30am to 4:30pm. If attempts to reach the examiner by telephone are unsuccessful the examiner's supervisor Henry Bennett can be reached at (703) 308-0101.

NP
February 3, 2004



Henry Bennett
Supervisory Patent Examiner
Group 3700